

REMARKS

This Amendment is in response to the Office Action dated July 1, 2003. In the Office Action, the Examiner rejected claims 1-14 and 16-20 under 35 U.S.C. § 102(e) as being anticipated by Chiloyan et al. (Pub. No.: US 20020083228) (hereinafter *Chiloyan*). Claims 16-20 were rejected to a being out of order, as claim 15 was inadvertently left out in the original claim numbering. Originally-numbered claims 16-20 have been renumbered 15-19, respectively

Claims 1, 2, 5, 6, and 15-19 are amended as shown above. Specifically, independent claims 1 and 6 have been amended to clarify that the network communication channel and network interfaces related to processor, mainboard, and peripheral devices are disposed in or coupled to a housing or computing machine. New claim 20 has been added. Claims 1-20 are now pending in the application. The Applicants respectfully request reconsideration and allowance of all pending claims, which are now in condition for allowance.

Traversal of the claims rejection under 35 U.S.C. § 102(e)

As discussed above, claims 1-14 and 16-20 were rejected under 35 U.S.C. § 102(e) as being anticipated by *Chiloyan*. As stated in the abstract, *Chiloyan* discloses:

A method and system for using a peripheral device identifier obtained from a peripheral device to determine a network address from a database, or generate the network address based on the identifier. Information related to the peripheral device is obtained from a remote device at the network address. The method includes automatically transferring at least one identifier from the peripheral device to a host device when the peripheral device is connected to the host device. The step of transferring is preferably done during or after enumeration of the peripheral device, such as occurs when a USB device is connected to a computer. The identifier is used as an index to automatically determine a network address from a database on the host device or a remote device, or to automatically generate a network address. Then, *communication occurs between the host device and a remote device or other source of the information indicated by the network address*. For example, the host device may download a device driver for the peripheral device from the remote device or from another peripheral device connected to the host device indicated by the network address. (Emphasis added)

With respect to independent claim 1, the Examiner asserts that *Chiloyan* discloses all of the claimed elements.

Claims 1, as amended, recites:

1. (Presently Amended) An apparatus comprising:

a housing;

a mainboard including memory and a first processor mounted within the housing;

a first network interface disposed within the housing and operatively coupled to the first processor, having a first network port and a first address;

*at least one expansion slot for receiving a peripheral device, **operatively coupled to the mainboard**; and*

*a network communications link connecting the first network interface to said at least one expansion slot substantially **disposed within the housing**,*

wherein the first processor is enabled to communicate with a peripheral device adapted to be coupled to one of said at least one expansion slot and having a built-in network interface by transmitting data via the first network interface and the built-in network interface over the network communications link using a network transmission protocol. (Emphasis added)

Applicants respectfully assert that the rejection of original claim 1 was improper, and amended claim 1 is patentable over the cited art. In particular, the network communication links disclosed in *Chiloyan* comprise cabling that is external to the computer housing, and the peripheral devices are both external and not accessed via a network communication link. In essence, *Chiloyan's* network communication links represent conventional network links, which comprise cabled or wireless links between end points having network interfaces, such as computers. In particular, all of the drawings disclosed by *Chiloyan* clearly show that the communication link (*e.g.*, wired LAN 51 in FIG 1 and wired or wireless LAN or WAN 251 in FIG. 8) is external to the computer housing (as shown by the dashed lines corresponding to the computer system 20 in FIG 1 and "host" in FIG. 8).

In accordance with aspects of the present invention, the network communication links are (substantially) disposed within the housing of a computer. The word "substantially" is included to cover situations in which a peripheral directly connects to a connector that is coupled to the

housing, such that the peripheral might be considered external to the housing, or that the peripheral includes a built-in network interface to which a network cable originating from the housing connects, such as would be the case if there was a short network cable between the housing and an expansion card having a network interface exposed to the outside of the housing – it does not cover situations in which a network cable connects to a peripheral that is remote to the computer housing, which is clearly the case shown in FIGs. 1 and 8 and discussed through the specification for *Chiloyan*.

In rejecting claim 1, the Examiner identifies paragraph [0032] in *Chiloyan* as disclosing the elements of "a network communications link connecting the first network interface to said at least one expansion slot substantially disposed within the housing." Paragraph [0032] reads:

When used in a LAN networking environment, personal computer 20 is connected to LAN 51 through a network interface or adapter 53. When used in a WAN networking environment, personal computer 20 typically includes a modem 54, or other means for establishing communications over WAN 52, such as the Internet. Modem 54, which may be internal or external, is connected to system bus 23, or coupled to the bus via I/O device interface 46, i.e., through a serial port. In a networked environment, program modules depicted relative to personal computer 20, or portions thereof, may be stored in the remote memory storage device. It will be appreciated that the network connections shown are exemplary and other means of establishing a communications link between the computers may be used, such as wireless communication and wide band network links.

This language merely concerns the operation and configuration of a conventional person computer (20) shown in FIG. 1 with respect to external networks, such as LANs and WANs. In fact, the entire text from paragraph [0029] – [0032] is boilerplate language that Microsoft requests is put in all of the patent applications for which Microsoft is an assignee – the undersigned attorney knows this because he used to prepare Microsoft application, and in fact previously worked for Ronald M. Anderson, the attorney who prepared the *Chiloyan* application.

One important distinction between the cited art and the present invention is that embodiments of the present invention discloses an intra-system communication architecture that employs network communication protocols and interfaces. The architecture provides several advantages. First, the architecture enables sharing of peripherals between processors in multi-

processor systems. Normally, bus-contention issues arise under conventional bus-based intra-system communication architectures, such as a conventional system bus. This problem is made worse when multiple processors desire access to a common system bus, and for this reason it is common to restrict secondary processors from accessing various devices connected to the system bus. In accordance with the invention's scheme, the peripheral devices may be accessed by any of the system processors via a intra-system networking scheme using conventional networking protocols. This eliminates the bus contention issue.

Another advantage relates to speed. At the time of the invention, a typical computer system employed a front-side bus (to which peripheral devices are coupled via expansion slots on a systems mainboard and other system components, such as memory, are coupled) having a speed of 33 or 66 MHz. Part of the reason for this is to support legacy devices. Also, front-side bus characteristics and communication protocols are specified for PCI-compliant peripherals. Even under today's computers, this front-side bus speed is limited to generally 100 MHz or less.

Under the network-based intra-communication architecture of the invention, much higher data transfer rates can be obtained. For instance, 1 Gbit/sec or even 10Gbit/sec Ethernet may be employed for the network communication link. Additional benefits are listed in the specification, including employing network security features, as recited in claim 16.

Clearly, the invention of claim 1 is not anticipated by *Chiloyan*. According, the rejection of claim 1 is improper, and should be withdrawn. Furthermore, each of claims 2-5, which depend from claim 1, are also in condition for allowance for at least the same reasons as claim 1.

With further respect to claim 2, the Examiner identifies that paragraphs [0030] and [0031] disclose an apparatus further comprising "a second network interface disposed on the mainboard in proximity to said at least one expansion slot having a second address and a second network port to enable communication between the first processor and a peripheral device that does not include a built-in network interface when the peripheral device is mounted in one of said at least one expansion slots." Again, paragraphs [0030] and [0031] contain boilerplate language concerning a convention personal computer 20, which clearly does not include a second network interface

disposed on the mainboard (only one network interface 53 is shown in FIG.1 and discussed in *Chiloyan*), doesn't even show any expansion slots, and doesn't discuss a peripheral device coupled to an expansion slot but rather only mentions peripheral devices 56 that are linked in communication with the personal computer via I/O device interface 46, which represents a conventional USB or serial interface. It is clear the *Chiloyan* does not anticipate the invention of claim 2, and thus the rejection is improper and should be withdrawn.

With further respect to claim 3, the Examiner asserts that *Chiloyan* discloses a network communications link comprising a network bus embedded in the mainboard, identifying FIG.1, items 23 and 20. Item 23 is a system bus and item 20 is the personal computer (PC). A system bus is a parallel bus that is used for intra-system communication in a conventional PC. It is not a network bus. A system bus employs a very precise timing mechanism, and moves data in parallel based on the timing mechanism and bus access cycles. Multiple devices may be coupled to the system bus, such as system memory, video adapters, hard disks, a network interface, etc. A typical PC system bus is 32 bits wide, although other bus widths may also be found. Tri-state buffers and the like enable multiple devices to be concurrently connects to a common system bus. In contrast, a network bus requires a network interface at each network access point, such as at the processor and the peripheral device. The system bus 23 is clearly not a network bus, as claimed in claim 3. Accordingly, the rejection of claim 3 is improper and should be withdrawn.

With further respect to claim 5, the Examiner asserts that *Chiloyan* discloses the claims elements of a second processor and a second network interface connected to the second processor and a network communication link to enable communication between the second processor and the a peripheral device having a built-in network interface, citing paragraphs [0016], [0017], [0030] and [0035]. Claim 5 has been amended to clarify that the second processor and second network interface are disposed in the housing, *i.e.*, as components coupled to the mainboard. Clearly, this not disclosed by *Chiloyan*. Accordingly, the rejection of claim 5 is improper and should be withdrawn

With respect to independent claim 6, this claim is a system claim that is similar to the apparatus claim of claim 1, further including a second network interface providing a second network port and network address linked in communication with the first peripheral device. Claim 6 has been amended to make it clear that both the first and second network interfaces are operatively coupled to the mainboard, and that there is a network communication link between the first and second network interfaces. As discussed above, this is clearly not disclosed in *Chiloyan*. Accordingly, amended claim 6 is in condition for allowance. Furthermore, each of claims 7-13, which depend from claim 6, are in condition for allowance for at least the same reasons.

Claim 8 is analogous to claim 3 with respect to the communication link comprising a network (signal) bus. A system bus is clearly not a network bus, as discussed above. Accordingly, the rejection of claim 8 is improper and should be withdrawn.

With further respect to claims 10 and 11, these claims respectively recite that the second network interface is built into the first peripheral device (which is disposed in the housing), and the second network interface is built into the mainboard. Neither of these embodiments is disclosed by *Chiloyan*. FIG. 1 only shows a single network interface 53, as is normal with a conventional PC. The peripheral device discussed in paragraph [0030] is not disposed in the housing of the personal computer. Accordingly, the rejections of claims 10 and 11 are improper and should be withdrawn.

With further respect to claim 12, the Examiner asserts that *Chiloyan* discloses "wherein the peripheral device comprises one of a video subsystem, a memory, a disk controller, and a modem," referencing FIG. 1, item 32. The applicant agrees that FIG. 1 shows each of a memory (22), a disk controller (32), a video subsystem (48), and a modem (54) – however, none of these are coupled to a network interface or have a built-in network interface. Clearly, each of the memory, disk controller, and video subsystem are coupled to system bus 23. Meanwhile, modem 54 is shown to be external to personal computer 20, and is clearly not disposed within the housing for the personal computer, or linked in communication with person computer 20 via a network interface. Accordingly, the rejection of claim 12 is improper and should be withdrawn.

With further respect to claim 13, *Chiloyan* clearly does not disclose a mainboard including a second processor connected to a third network interface having a third network address and network port connected to the communications link. Accordingly, the rejection of claim 13 is improper and should be withdrawn.

With respect to claim 14, this claim is an independent method claim reciting operation of a network-based intra-system communication scheme analogous to claim 1. Importantly, the peripheral device is disposed within the computing machine. This is clearly not disclosed by *Chiloyan*. The only components/devices referenced in *Chiloyan* that could be reasonably construed as peripheral devices are peripheral device 56 in FIG.1 and digital cell phone 233, global positioning system 234 and peripheral node 256 in FIG. 8. None of these are linked with a communication link between network interfaces of a processor and the peripheral device. In face, ✓ neither the processor or the devices in *Chiloyan* include network interfaces. Accordingly, the rejection of claim 14 is improper and should be withdrawn. Furthermore, each of claims

With further respect to claim 16 (renumbered to 15), the Examiner asserts that *Chiloyan* discloses wherein the network transmission protocol comprises the TCP/IP protocol, referencing paragraphs [0034] and [0039]. Applicant respectfully asserts that neither of paragraphs [0034] and [0039] specifically reference TCP/IP (paragraph [0039] mentions an IP address, but not TCP/IP, and paragraph [0034] doesn't mention either TCP/IP or IP). More importantly, any network communication disclosed by *Chiloyan* is between a computer (or host) and an **external** component using a network communication link that is external to the computer. Accordingly, the rejection of claim 16 is improper and should be withdrawn.

With further respect to claim 17 (renumbered to 16), the Examiner states that *Chiloyan* discloses the method further comprising applying security measures to determine if an application may connect to a particular peripheral device, citing paragraph [0001], asserting "wherein identifier implies security." First, there is nothing in paragraph [0001] that discusses or even implies security. A vendor identification and product ID are used to identify a type of device so that the operating system can install or load the proper device driver for the device. This has nothing to do

with security. Furthermore, claim 17 specifically recites applying security measures to determine if an application may connect to a particular device. There is no mention of an application accessing a peripheral device in the entirety of *Chiloyan*. It is clear that *Chiloyan* doesn't disclose all of the claim elements of claim 17. Accordingly, the rejection of claim 17 is improper and should be withdrawn.

With further respect to claim 18 (renumbered to 17), the Examiner asserts that *Chiloyan* discloses UDP as the network transmission protocol, referencing paragraph [0039]. There is absolutely no mention of UDP (user datagram protocol) in paragraph [0039] or anywhere else in the specification of *Chiloyan*. Accordingly, the rejection of claim 18 is improper and should be withdrawn.

With further respect to claim 19 (renumbered to 18), the Examiner asserts that *Chiloyan* discloses an intra-system communication method of claim 14 wherein the communication link and the network interfaces comprise an internal Ethernet network. The term "internal" implies that the entire network is internal to the computing machine. This is clearly not disclosed in *Chiloyan*; as discussed above, the only network communication links disclosed in *Chiloyan* pertain to external networks. Accordingly, the rejection of claim 19 is improper and should be withdrawn.

Overall, none of the references singly or in any motivated combination disclose, teach, or suggest what is recited in the independent claims. Thus, given the above amendments and accompanying remarks, independent claims 1, 6, and 14 are now in condition for allowance. The dependent claims that depend directly or indirectly on these independent claims are likewise allowable based on at least the same reasons and based on the recitations contained in each dependent claim.

If the undersigned attorney has overlooked a teaching in any of the cited references that is relevant to the allowability of the claims, the Examiner is requested to specifically point out where such teaching may be found. Further, if there are any informalities or questions that can be addressed via telephone, the Examiner is encouraged to contact the undersigned attorney at (206) 292-8600.

Charge Deposit Account

Please charge our Deposit Account No. 02-2666 for any additional fee(s) that may be due in this matter, and please credit the same deposit account for any overpayment.

Respectfully submitted,

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